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# THE MONIST.

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## THE PRESENT POSITION OF LOGICAL THEORY.

THE remarkable fact in the intellectual life of to-day is the contradiction in which it is entangled. On one hand we have an enormous development of science, both in specialisation of method and accumulation of material ; its extension and thorough-going application to all ranges of experience. What we should expect from such a movement, would seem to be confidence of intelligence in itself ; and a corresponding organisation of knowledge, giving some guide and support to life. The strange thing is that instead of this we have, probably, the greatest apparent disorganisation of authority as to intellectual matters that the world has ever seen ; while the prevalent attitude and creed of scientific men is philosophic agnosticism, or disbelief in their own method when it comes to fundamental matters. Such a typical representative of modern science as Mr. Huxley virtually laughs to scorn the suggestion of Mr. Frederic Harrison that science should or could become so organised as to give any support, any authoritative stay, to life.

Now I do not intend to discuss this apparent contradiction. It seems to me obvious enough that the contradiction is due to the fact that science has got far enough along so that its negative attitude towards previous codes of life is evident, while its own positive principle of reconstruction is not yet evident. But without urging this view upon the reader, I wish to ask how and where in the prevailing confusion logical theory, as a synopsis of the methods and

typical forms of intelligence, stands. Logical theory at once reflects and transforms the existing status of matters intellectual at any period. It reflects it, for logical theory is only the express, the overt consciousness on the part of intelligence of its own attitude, prevailing spirit. It transforms it, because this express consciousness makes intelligence know where it stands, makes it aware of its strength and of its weakness, and by defining it to itself forces it to take up a new and more adequate place.

It is obvious, then, that as the prevailing influence in the intellectual world to-day is science, so the prevailing influence in logical theory must be the endeavor to account for, to justify, or at least to reckon with this scientific spirit. And yet if there is such confusion as we have indicated, then there is also manifested some chaos in logical theory, as to the true nature and method of science. Were it otherwise, were there at present a logical theory adequate to the specific and detailed practical results of science, science and scientific men would be conscious of themselves, and would be confident in their work and attitude.

The especial problem of logic, as the theory of scientific method, is the relation of fact and thought to each other, of reality and thought. It is, however, differentiated from the metaphysical theory of knowledge. Logic does not inquire into the ultimate *meaning* of fact and thought, nor into their *ultimate* relations to one another. It simply takes them from the attitude of science itself, its business being, not the justification nor refutation of this attitude, but its development into explicit doctrine. Fact means to logic no more, but certainly no less, than it means to the special sciences: it is the subject-matter under investigation, under consideration; it is that which we are trying to make out. Thought too means to logic what it means to science: method. It is the attitude and form which intelligence takes in reference to fact—to its subject-matter, whether in inquiry, experiment, calculation, or statement.

Logic, then, would have for its essential problem the consideration of the various typical methods and guiding principles which thought assumes in its effort to detect, master, and report fact. It is presupposed here that there is some sort of fruitful and intrinsic

connection of fact and thought ; that thinking, in short, is nothing but the fact in its process of translation from brute impression to lucent meaning.

But the moment such a presupposition is stated, ninety-nine persons out of a hundred think that we have plunged, *ex abrupto*, from the certainty of science into the cloudland of metaphysic. And yet just this conception of the relation of thought (method) to fact (subject-matter) is taken for granted in every scientific investigation and conclusion. Here, then, we have in outline the present position of logic. It is that any attempt to state, in general, or to work out, in detail, the principle of the intrinsic and fruitful relation of fact and thought which science, without conscious reflection, constantly employs in practice, seems “metaphysical” or even absurd. Why is this? The answer to this question will give the filling-up of the outline just presented.

The chief cause is that superstition which still holds enthralled so much of modern thought—I mean formal logic. And if this seems like applying a hard name to what, at best and at worst, is only an intellectual gymnastic, I can only say that formal logic seems to me to be, at present, *fons et origo malorum* in philosophy. It is true enough that nobody now takes the technical subject of formal logic very seriously—unless here and there some belated “professor.” It is true that it is generally relegated to the position of a subject which, for some unclear reason, is regarded as “disciplinary” in a young man’s education ; just as certain other branches are regarded as elegant accomplishments in a young woman’s finishing. But while the subject itself as a doctrine or science hardly ranks very high, the conception of thought which is at the bottom of formal logic still dominates the *Zeitgeist*, and regulates the doctrine and the method of all those who draw their inspiration from the *Zeitgeist*. Any book of formal logic will tell us what this conception of thought is : that thought is a faculty or an entity existing in the mind, apart from facts, and that it has its own fixed forms, with which facts have nothing to do—except in so far as they pass under the yoke. Jevons puts it this way : “Just as we thus familiarly recognise the difference of form and substance in common

tangible things, so we may observe in logic, that the form of an argument is one thing, quite distinct from the various subjects or matter which may be treated in that form.” \*

Professor Stock varies the good old tune in this way: “In every act of thought we may distinguish two things—(1) the object thought about, (2) the way in which the mind thinks of it. The first is called the Matter; the second the Form of Thought. Now formal . . . logic is concerned only with the way in which the mind thinks, and has nothing to do with the particular objects thought about.” †

It is assumed, in fine, that thought has a nature of its own independent of facts or subject-matter; that this thought, *per se*, has certain forms, and that these forms are not forms which the facts themselves take, varying with the facts, but are rigid frames, into which the facts are to be set.

Now all of this conception—the notion that the mind has a faculty of thought apart from things, the notion that this faculty is constructed, in and of itself, with a fixed framework, the notion that thinking is the imposing of this fixed framework on some unyielding matter called particular objects, or facts—all of this conception appears to me as highly scholastic, as the last struggle of mediævalism to hold thought in subjection to authority. Nothing is more surprising than the fact that while it is fashionable to reject, with great scorn, all the results and special methods of scholasticism, its foundation-stone should still be accepted as the corner-stone of the edifice of modern doctrine. It is still more surprising when we reflect that the foundation-stone is coherent only with the mediæval superstructure. The scholastics when they held that the method of thought was a faculty pursuing its own method apart from the course of things, were at least consistent. They did not conceive that thought was free, that intelligence had rights, nor that there was possible science independent of data authoritatively laid down. Really believing what they professed,—that thought was something *in se*,—

\* Jevons, *Elementary Lessons in Logic*, p. 5.

† Stock, *Deductive Logic*, p. 3.

they held that it must be supplied with a fixed body of dogmatic fact, from tradition, from revelation—from external authority. They held that thought in its workings is confined to extracting from this dogmatic body of fact what is already contained in it, and to re-arranging the material and its implications. To examine the *material*, to test its truth; to suppose that intelligence could cut loose from this body of authority and go straight to nature, to history itself, to find the truth; to build up a free and independent science—to this point of incoherency mediæval scholasticism never attained. To proclaim the freedom of thought, the rejection of all external authority, the right and the power of thought to get at truth for itself, and yet continue to define thought as a faculty apart from fact, was reserved for modern enlightenment! And were it not somewhat out of my present scope, I should like to show that modern culture is thus a prepared victim for the skilful dialectician of the reactionary army. If the modern *Zeitgeist* does not fall a prey to the cohorts of the army of external authority, it is not because it has any recognised methods or any recognised criterion by which it can justify its raising the “banner of the free spirit.” It is simply the obstinate bulwark of outer fact, built up piecemeal by science, that protects it.

The two main forces, which have been at work against the formulæ of formal logic, are “inductive” or empirical logic on one side, and the so-called “transcendental” logic, on the other. Of these two, the influence of inductive logic in sapping in practical fashion and popular results the authority of syllogistic logic has undoubtedly been much the greater. I propose, briefly, to give certain reasons for holding, however, that the inductive logic does not furnish us with the needed theory of the relation of thought and fact. To show this adequately would demand the criticism of inductive logic in the detail of its methods, in order to show where it comes short. As this is impossible, I shall now confine myself to a couple of general considerations.

To begin with, then, the empirical logic virtually continues the conception of thought as in itself empty and formal which characterises scholastic logic. It thus has really no theory which differ-

entiate it, as regards the nature of thought itself, from formal logic. I cannot see, for example, what quarrel the most stringent upholder of formal logic can have with Mill as to the latter's theory of the syllogism. Mill's theory is virtually simply a theory regarding the formation of the major premiss—regarding the process by which we formulate the statement that All *S* is *P*. Now, if we once accept the syllogistic position, this process lies outside the scope and problem of formal logic. It is not an affair of what Jevons calls the form of argument at all, but simply of the matter, the particular facts which make the filling of the argument. I do not see that it is any part of the business of formal logic to tell where the major premiss comes from, nor how it is got. And, on the other hand, when it comes to the manipulation of the data contained in the premiss, Mill must fall back upon the syllogistic logic. Mill's theory, so far as the thought-element is concerned, presupposes the syllogistic theory. And if this theory, on its side, does not presuppose something like Mill's inductive theory, it is simply because the logician, as a *philosopher*, may prefer "intuitionism" to "empiricism." He may hold, that is, that the content of some major premisses is given by direct "intuition" rather than gathered from experience. But in either case, this consideration of the source of the content of the premiss belongs not to formal logic, but to metaphysics.

If, then, the theory of the syllogism is incorrect in its assumptions as to the relation of fact and thought, the inductive logic must be similarly in error. Its great advantage over the old scholastic logic lies not in its logic as such, but in something back of the logic—in its account of the derivation of the material of judgment. Whatever the defects of Locke's or Mill's account of experience, any theory which somehow presupposes a first-hand contact of mind and fact (though it be only in isolated, atomic sensations) is surely preferable to a theory which falls back on tradition, or on the delivery of dogma irresponsible to any intellectual criticism. But in its account of the derivation of the material of judgment, inductive logic is still hampered by the scholastic conception of thought. Thought, being confined to the rigid framework in which the material is manipulated after being obtained, is excluded from all share in

the gathering of material. The result is that this material, having no intrinsic thought-side, shrinks into a more or less accidental association of more or less shifting and transitory mental states.

I shall not stop to argue that, on this ground, the "inductive" logic deprives science of its most distinctive scientific features—the permanence and objectivity of its truths. I think no one can deny that there is at least an *apparent* gap between the actual results of concrete science and these results as they stand after the touch of the inductive logic—that the necessity and generality of science seem rather to have been explained away, than explained. I think most of the inductive logicians themselves (while endeavoring to account for this apparent necessity as generated through association) would admit that something of science *seems*, at least, to have been lost, and that the great reason for putting-up with this loss is that the inductive logic is the sole alternative to a dogmatic intuitionism and to arbitrary spinning-out of *a priori* concepts.

Certainly as long as thought is conceived after the fashion of syllogistic logic, as a scheme furnished and fixed in itself, apart from reality, so long scientific men must protest against allowing thought any part or lot in scientific procedure. So long some such *modus operandi* as that given by Mill must be resorted to in order to explain scientific methods and results. But, on the other hand, if the scholastic idea of thought as this something having its character apart from fact is once given up, the cause which at present cramps the logic of science into the logic of sensationalism and empiricism is also given up. And this brings us to the other point in general regarding the inductive or empirical logic. It is not strictly a logic at all but a metaphysic. It does not begin with the fact of science, the fact of the fruitful inquiry into fact by intelligence, at all. It does not, starting from this fact analyse the various methods and types which thought must take upon itself in order to maintain this fruitful inquiry. On the contrary, it begins with sensations, and endeavors by a theory of knowledge on the basis of sensationalism to build up the structure of cognition, ordinary and scientific. I am not concerned here with the truth of sensationalism as a metaphysical theory of knowledge, nor with the adequacy of the notion of



sensation advanced by Mill. It is enough from the logical point of view to point out that such a theory is not logic—that logic does not deal with something *back* of the fact of science, but with the analysis of scientific method as such. And is it forcing matters to indicate that this retreat from logic to metaphysic is also caused by the syllogistic notion of thought? Formal thought, with its formulæ for simply unfolding a given material, is of no use in science. There is, therefore, the need of some machinery to take the place of thought. And this is found in sensation and in “experience” according to the peculiar notion of experience current in the inductive logic.

In a word, then (without attempting to show the insufficiency of inductive logic as the theory of science by reference to its treatment of specific points) inductive logic does not meet our needs because it is not a free, unprejudiced inquiry into the special forms and methods of science, starting from the actual sciences themselves. It is founded and built up with constant reference to the scholastic notion of thought. Where it is not affected positively by it, it is still affected by its reaction from it. Instead of denying once for all validity or even sense to the notion of thinking as a special, apart process, and then beginning a free, unhampered examination with an eye single to the fact of science itself, it retains this conception of thought as valid in a certain department, and then sets out to find something to supply the gap in another department. And thus we have the usual division of inductive and deductive logic, inductive being interpreted as empirical and particular, deductive as syllogistic and formal. They are counterpart and correlative theories, the two sides of the notion of the separateness of fact and thought; they stand and fall together.

“Transcendental” logic, while usually conceived as utterly opposed in spirit and in results to inductive logic, has yet been one with it in endeavoring to abolish formal logic as the sufficient method and criterion of scientific truth. I say this although well aware that inductive logic is usually conceived as specifically “scientific,” while the transcendental movement is regarded as the especial foe of science—as a belated attempt to restore an *a priori* scholasticism,

and to find a scheme for evolving truth out of pure thought. This is because when the "transcendental" school talks of thought, of the synthetic and objective character of thought, of the possibility of attaining absolute truth through thought, and of the ontological value of thought, it is understood as meaning thought in the old, scholastic sense, a process apart and fixed in itself, and yet somehow evolving truth out of its own inner being, out of its own enclosed ruminations. But on the contrary, the very meaning of "transcendentalism" is not only that it is impossible to get valid truth from the evolution of thought in the scholastic sense, but that there is no such thought at all. Processes of intelligence which have their nature fixed in themselves, apart from fact and having to be externally applied to fact, are pure myths to his school. Types of thought are simply the various forms which reality progressively takes as it is progressively mastered as to its meaning,—that is, understood. Methods of thought are simply the various active attitudes into which intelligence puts itself in order to detect and grasp the fact. Instead of rigid moulds, they are flexible adaptations. Methods of thought fit fact more closely and responsively than a worn glove fits the hand. They are only the ideal evolution of the fact,—and by "ideal" is here meant simply the evolution of fact into meaning.

If this is a fair description of what the "transcendental" school means by thought, it is evident that it is a co-worker with the spirit and intent of "inductive" logic. Its sole attempt is to get hold of and report the presupposition and rationale of science; its practical aim is to lay bare and exhibit the method of science so that the true seat of authority—that is, the authority, the *backing*, of truth—shall be forever manifest. It has simply gone a step further than "inductive" logic, and thrown overboard once for all the scholastic idea of thought. This has enabled it to start anew, and to form its theory of thought simply by following the principles of the actual processes by which man has, thus far in history, discovered and possessed fact.

I shall not attempt here any defence of the "transcendental" logic; I shall not even attempt to show that the interpretation of it

which I have given above is correct. It must go, for the present, simply as my individual understanding of the matter. Simply taking this view of "transcendental" logic for granted, I wish, in order to complete our notion of the present position of logic, to consider the reasons which have thus far prevented, say, the Hegelian logic from getting any popular hold—from getting recognition from scientific men as, at least in principle, a fair statement of their own basic presupposition and method.

The first of these reasons is that the popular comprehension of the "transcendental" movement is arrested at Kant and has never gone on to Hegel. Hegel, it is true, overshadowed Kant entirely for a considerable period. But the Hegelian régime was partly pyrotechnical rather than scientific in character; and, partly, so far as it was scientific, it exhausted itself in stimulating various detailed scientific movements—as in the history of politics, religion, art, etc. In these lines, if we trust even to those who have no faith in the Hegelian method or principles, the movement found some practical excuse for being. But the result of the case was—and its present status is—that because the principle of Hegel was, for the time, lost either in display of dialectical fireworks, or in application to specific subjects, the principle itself has never met with any *general* investigation. The immense amount of labor spent on Kant during the past twenty years has made method and principle familiar, if not acceptable, to the body of men calling themselves educated. And thus, so far as its outcome is concerned, the transcendental movement still halts with Kant.

Now, at the expense of seeming to plunge myself deeper in absurdity than I have already gone, I must say that the Kantian principle is by far more "transcendental" in the usual interpretation of that term—more *a priori*, more given to emphasising some special function of some special thought-power—than the Hegelian. As against the usual opinion that while some compromise between science and Kant is possible, the scientific spirit and Hegel are at antipodes, it appears to me that it is Kant who does violence to science, while Hegel (I speak of his essential method and not of any particular result) is the quintessence of the scientific spirit. Let me

endeavor to give some reasons for this belief. Kant starts from the accepted scholastic conception of thought. Kant never dreams, for a moment, of questioning the existence of a special faculty of thought with its own peculiar and fixed forms. He states and restates that thought in itself exists apart from fact and occupies itself with fact given to it from without. Kant, it is true, gives the death-blow to scholasticism by pointing out that such a faculty of thought is purely analytic—that it simply unfolds the material given, whether that material be true or false, having no method of arriving at truth, and no test for determining truth. This fact once clearly recognised, dogmatic rationalism, or the attempt to get truth from the “logical” analysis of concepts was forever destroyed. The way was opened for an independent examination of the actual method of science.

But while Kant revealed once for all the impossibility of getting truth, of laying hold of reality, by the scholastic method, he still retained that conception of thought. He denied, not its existence, but its worth as relates to truth. What was the result? Just this: when he came to his examination (criticism) of knowledge, it fell apart at once into two separate factors, an *a priori* and a *posteriori*. For if Kant finds, as against the dogmatic rationalist, that formal thought cannot give knowledge, he also finds, as against the sceptical empiricist, that unrelated sensation cannot give knowledge. Here too, instead of denying, *in toto*, the existence of unrelated sensation, he contented himself with denying its functional value for knowledge. Unrelated sensation and formal thought are simply the complementary halves of each other. Admit the one, and the other is its necessary counterpart.

Kant must now piece together his two separated factors. Sensation, unrelated manifold of sensation, is *there*, thought, isolated, analytic thought, is *here*. Neither is knowledge in itself. What more natural than to put them together, and hold that knowledge is the union of a matter or stuff, of sensations, atomic in themselves, on one hand, and a form, or regulating principle of thought, empty in itself, on the other? We have two elements, both existing in isolation, and yet both useless for all purposes of knowledge. Combine them, and presto, there is science.

Such a "transcendentalism" as this may well stick in the crop of scientific men. For consider what is involved in it: an *a priori* factor, on one side, and an *a posteriori*, on the other. Kant, from one point of view, seems thus to have simply combined the weaknesses of empiricism and rationalism. He still continues to talk of experience itself as particular and contingent, and denies that it gives a basis for any universal laws. Aside from his effort in the "Kritik der Urtheilskraft" to overcome his original separation, special scientific laws are to him only more or less extensive generalisations from experience—as much so to him as to Locke, or Mill. Scientific men indeed, have accustomed themselves to this derogation of their own methods and results, and, as "inductive" logicians, indulge in it quite freely themselves. But an *a priori* element, supplied by a thought fixed and separate, scientific men cannot do away with. Nor do I know any reason why they should.

It is coming short, in my opinion, of the full stature of science to treat it as a quantitative and varying generalisation of contingent particulars, but this, at least, leaves what science there is free and unhindered. But *a priori* elements supplied from outside the fact itself, *a priori* elements somehow entering into the fact from without and controlling it—this is to give up the very spirit of science. For if science means anything, it is that our ideas, our judgments may in some degree reflect and report the fact itself. Science means, on one hand, that thought is free to attack and get hold of its subject-matter, and, on the other, that fact is free to break through into thought; free to impress itself—or rather to express itself—in intelligence without vitiation or deflection. Scientific men are true to the instinct of the scientific spirit in fighting shy of a distinct *a priori* factor supplied to fact from the mind. Apriorism of this sort must seem like an effort to cramp the freedom of intelligence and of fact, to bring them under the yoke of fixed, external forms.

Now in Hegel there is no such conception of thought and of *a priori*, as is found in Kant. Kant formulated the conception of thought as objective, but he interpreted this as meaning that thought subjective in itself *becomes* objective when synthetic of a given sense-manifold. When Hegel calls thought objective he means just what

he says : that there is no special, apart faculty of thought belonging to and operated by a mind existing separate from the outer world. What Hegel means by objective thought is the meaning, the significance of the fact itself ; and by methods of thought he understands simply the processes in which this meaning of fact is evolved.

There has been, of late, considerable discussion of the place and function of "relations" in knowledge. This discussion in English speculation, at least, tends to turn largely about Thomas Hill Green's reconstruction of Kantianism. I consider it unfortunate that this discussion has taken the form of a debate between empiricism and Kantianism. The question of knowledge has thus come to be whether or not certain relations are supplied by thought to sensations in order to make an orderly whole out of the latter, chaotic in themselves. Now when Hegel talks of relations of thought (not that he makes much use of just this term) he means no such separate forms. Relations of thought are, to Hegel, the typical forms of meaning which the subject-matter takes in its various progressive stages of being understood. And this is what *a priori* means from a Hegelian standpoint. It is not some element *in* knowledge ; some addition of thought to experience. It is experience itself in its skeleton, in the main features of its framework.

"Refutations" of Hegel, then, which attempt to show that "thought" in itself is empty, that it waits for content from experience, that it cannot by any manipulation evolve truth out of itself are, if taken as having relevance to Hegel, simply meaningless. Hegel begins where these arguers leave off. Accepting all that they can say, he goes one step further, and denies that there is any such "thought" at all anywhere in existence. The question of the relations or "categories of thought" is just the question of the broad and main aspects of fact as that fact comes to be understood.

For example, Kant would prove the *a priori* character and validity of the principle of causation by showing that without it science is impossible, that it helps "make experience." Now, in terms, Hegel's justification of this relation would be the same ; he too would show that the fabric of experience implies and demands the causal relation. But in Kant's case, the justification of the

principle of causality by reference to the possibility of experience means that thought must continually inject this principle *into* experience to keep it from disappearing: that experience must be constantly braced and reinforced by the synthetic action of thought or it will collapse. In short, the need of experience for this principle of causation means its need for a certain support outside itself. But Hegel's demonstration of the validity of the causal principle is simply pointing out that the whole supports the part, while the part helps make the whole. That is to say, Hegel's reference is not to some outside action of thought in maintaining fact as an object of knowledge; it is to the entire structure of fact itself. His contention is simply that the structure of fact itself, of the subject-matter of knowledge, is such that in one of its phases it presents necessarily the aspect of causality. And if this word "necessarily" gives pause, it must be remembered what the source of this necessity is. It does *not* lie in the principle of causation *per se*; it lies in the whole fact, the whole subject-matter of knowledge. It is the same sort of necessity as when we say that a complete man *must* have an eye; i. e., it is the nature of the human organism to develop and sustain this organ, while the organ, in turn, contributes to and thus helps constitute the organism.

It is then evident that the question upon which the "refutation" of Hegel turns is not in showing that formal "thought" cannot give birth to truth except through the fructifying touch of experience. The question is simply whether fact—the subject-matter of knowledge—is such as Hegel presents it. Is it, in general, a connected system as he holds it to be? And, if a system, does it, in particular, present such phases (such relations, categories) as Hegel shows forth? These are objective questions pure and simple; questions identical, in kind, with the question whether the constitution of glucose is what some chemist claims to have found it.

This, then, is why I conceive Hegel—entirely apart from the value of any special results—to represent the quintessence of the scientific spirit. He denies not only the possibility of getting truth out of a formal, apart thought, but he denies the existence of any faculty of thought which is other than the expression of fact itself.

His contention is not that "thought," in the scholastic sense, has ontological validity, but that fact, reality is significant. Even, then, if it were shown that Hegel is pretty much all wrong as to the special meanings which he finds to make up the significance of reality, his main principle would be unimpeached until it were shown that fact has not a systematic, or interconnected, meaning, but is a mere hodgepodge of fragments. Whether the scientific spirit would have any interest in such a hodgepodge may, at least, be questioned.

Having dealt at such length with the first reason why as yet the "transcendental" movement has found no overt coalescence with the scientific, we may deal briefly with the remaining reason.\* In the second place, then, the rationality of fact had not been sufficiently realised in detail in the early decades of the century to admit of the principle of the "transcendental" movement being otherwise than misunderstood. That is to say, the development and, more particularly, the application of science to the specific facts of the world was then comparatively rudimentary. On account of this lack of scientific discovery and application, the world presented itself to man's consciousness as a blank, or at least as only stuff *for* meaning, and not as itself significant. The result was that Hegel must be interpreted subjectively. The difficulties in the way of conceiving a world, upon which science had not yet expended its energies in detail, as an organism of significant relations and bearings were so great, that Hegel's attempt to point out these significant types and functions as immanent in reality was inevitably misconstrued as an attempt, on Hegel's part, to prove that a system of purely "subjective" thoughts could somehow be so manipulated as to give objectively valid results.

Hegel, in other words, anticipated somewhat the actual outcome of the scientific movement. However significant fact may be,

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\* It should be understood that in the previous discussion so far as it relates to Kant, I have taken him at his lowest terms—those of logical self-consistency. So far as Kant does not succeed in freeing himself from his original position—the existence of a formal, or apart, faculty of thought—so far his emphasis of the *a priori* in the sense already attributed to him is inevitable. But that the *tendency* of Kant is to make the thought-relations *a priori* simply in the sense of being fact's own anatomy and physiognomy I should not deny.



however true it may be that an apart faculty of thought is an absurdity, however certain it may be that there are no real types or methods of thought at all excepting those of the object-matter itself as it comes to be understood, yet to man this objective significance cannot be real till he has made it *out* in the details of scientific processes, and *made* it applied science in invention. Hegel's standpoint was, therefore, of necessity obscure. When the significant character of fact was not yet opened up in detail, a method which worked upon the basis that the only possible thought is the reflection of the significance of fact, had no chance of fair interpretation. And thus it was (and largely is) that when Hegel speaks of objective thought and its relations, he is understood as having the ordinary conception of thought (that is, of thought as a purely separate and subjective faculty), and yet as trying to prove that this apart faculty has some mysterious power of evolving truth.

The question which now confronts us, therefore, as to the present place of logic is just this : Has the application of scientific thought to the world of fact gone far enough so that we can speak, without seeming strained, of the rationality of fact? When we speak of the rationality, of the intrinsic meaning of fact, can these terms be understood in their direct and obvious sense, and not in any remote, or *merely* metaphysical sense? Has the theoretical consideration of nature in its detailed study, has practical invention, as the manifestation of the rationality of fact, gone far enough so that this significance has become, or could become with some effort, as real and objective a material of study as are molecules and vibrations?

It seems to me that we are already at this stage, or are at the point of getting to it. Without arguing this question, however, (which, indeed, can be proved only by acting upon it, only *ambulando*,) I would point out that the constant detailed work of science upon the world in theory and in invention, must in time give that world an evident meaning in human consciousness. What prevents scientific men from now realising this fact, is that they are still afraid of certain "transcendent" entities and forces ; afraid that if they relax their hostility to metaphysic, some one will spring upon them the old scholastic scheme of external, supernatural unreali-

ties. To those who take the prevailing agnosticism not as a thing, but as a symptom, this agnosticism means just this: The whole set of external, or non-immanent entities, is now on the point of falling away, of dissolving. We got just so far, popularly, as holding that they are unknowable. In other words, they are crowded to the extreme verge. One push more, and off they go. The popular consciousness will hold not only that they are unknowable, but that they are not.

What then? Science freed from its fear of an external and dogmatic metaphysic, will lose its fear of metaphysic. Having unquestioned and free possession of its own domain, that of knowledge and of fact, it will also be free to build up the intrinsic metaphysic of this domain. It will be free to ask after the structure of meanings which makes up the skeleton of this world of knowledge. The moment this point is reached, the speculative critical logic worked out in the development of Kantian ideas, and the positive, specific work of the scientific spirit will be at one. It will be seen that this logic is no revived, redecked scholasticism, but a complete abandonment of scholasticism; that it deals simply with the inner anatomy of the realm of scientific reality, and has simply endeavored, with however much of anticipation, to dissect and lay bare, at large and in general, the features of the same subject-matter, which the positive sciences have been occupying themselves with in particular and in detail.

That we are almost at the point of such conflux, a point where the general, and therefore somewhat abstract lines of critical logic will run in to the particular, and therefore somewhat isolated, lines of positive science, is, in my opinion, the present position of logical theory.

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